

Serial No.: 09/747,920
Amendment Dated: January 19, 2005
Reply to Office Action of December 7, 2004

REMARKS/ARGUMENTS

Reconsideration of the application is respectfully requested. Claim 1 has been amended as hereinbefore presented. Claim 7 has been rewritten in independent form as hereinbefore presented. Applicants respectfully request that the Examiner enter this amendment after final. A total of seven (7) claims, two (2) of which are independent claims, will be pending upon entry of this amendment. Accordingly, no fee is due with entry of this amendment.

As this response is being filed within two (2) months of the mailing of the final rejection issued December 7, 2004, Applicants respectfully request that the Examiner issue an Advisory Action prior to the expiration of the three (3) shortened period of response on March 7, 2005.

Claims 1 and 3 stand finally rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Richard E. Pabst (identified in the office action as Richard), U.S. Patent 2,525,560. The Examiner cites the '560 patent as disclosing a refrigerator R comprising an insulated cabinet defining a product display area/upper food chamber U and having a compartment/lower chamber L separate from product display area/upper chamber U; and air circulation circuit connecting the product display area/upper chamber U and the lower compartment L in air flow communication; an evaporator E disposed within the lower compartment L; at least one air circulation fan/blower 58 disposed within the lower compartment L in laterally spaced relationship upstream of the evaporator E with respect to air flow; a partition 80 with plurality of flow openings, the partition with flow openings disposed in the air circulation circuit intermediate the evaporator and the fan/blower 58. The Examiner considers partition 80 with flow openings as a flow baffle and therefore considers the '560 patent to disclose the invention substantially as claimed.

Alternatively, the Examiner considers having a sheet or partition plate with flow openings in the name of a flow baffle to be an obvious choice of the individual skilled in the art. Applicants respectfully traverse both this rejection under 35 U.S.C. 102(b) or under 35 U.S.C. 103(a).

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Applicants respectfully submit that the partition plate 80 with flow openings therethrough does not constitute a flow baffle. The partition plate 80 of the '560 patent extends generally parallel to the flow through the duct 82 and actually forms the upper wall of the duct 82. The fins formed from punching the openings in the partition 80 appear designed to direct flow from the duct 80 to turn 90 degrees and pass through the openings into the evaporator. Further, the openings in the partition plate 80 form the inlet per se to the evaporator 1. Being disposed at the inlet to the evaporator 1 and forming the inlet to the evaporator 1, the partition plate 80 with flow openings therein does not function as a flow baffle operative to evenly distribute the air flow passing through the duct 82 as it passes into the evaporator. Further, the duct 82 becomes narrower, as best seen in Figure 7 of the '560 patent, resulting in a decreasing flow area in the direction of flow through the duct 82. It is respectfully submitted that this decrease in flow area is the primary means of distributing the flow into the evaporator, not the openings punched in the partition plate 80.

In Applicants' invention, a flow baffle is disposed, as depicted in Figures 3 and 4, to extend generally transversely across the air circulation circuit intermediate the evaporator and the at least one fan to provide a generally more uniform air flow entering the evaporator. Claim 1, as amended, recites that the flow baffle extends "generally transversely across" the air circuit, not parallel to the duct as disclosed in the cited reference. The flow baffle of Applicants' invention creates a pressure drop that helps improve flow distribution. Accordingly, it is respectfully submitted that Pabst '560 (Richard) does not anticipate Applicants' invention recited in claim 1 or 3.

Further, one skilled in the art would not be led to modify the refrigerator R to insert a perforated member in the duct 82 intermediate the fan 58 and the evaporator 1 so as to extend across the air circuit. There is no motivation in the '560 patent to lead one skilled in the art to make such a modification as the punched openings in the partition plate 80 form inlets with turning vanes through which air flow passes from the supply duct 82 directly into the evaporator 1. Further, in the cited

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reference, the perforated plate is disposed generally parallel to the air circuit so as to form the upper wall of the duct 82 with the opening therein forming the inlet to the evaporator. Accordingly, it is respectfully submitted that Pabst '560 (Richard) does not render claim 1 or claim 3 obvious under 35 U.S.C. 103.

Claim 2 stands finally rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 2,525,560, in view of Bemisderfer et al., U.S. Patent 5,062,475. The Examiner cites the '560 patent as disclosing the invention substantially as claimed as stated above, but not disclosing a fin density in the range of 6 fins per inch to 15 fins per inch. The Examiner cites Bemisderfer et al. as teaching the use of 5 to 20 fins per inch with an evaporator coil in a refrigeration system for the purpose of having a desired airflow pattern. The Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the refrigerator of the '560 patent in view of Bemisderfer et al. such that a fin density in the range of 5 to 20 per inch could be provided to have a desired airflow pattern. Applicants respectfully traverse this rejection.

Bemisderfer et al. does disclose a fin and tube exchanger having a fin density of 5 to 20 fins per inch. However, such a fin density is commonly employed in evaporators for air conditioning and frost-free refrigeration applications only. It is respectfully submitted that Bemisderfer et al. does not provide motivation for one skilled in the art to modify a refrigerated merchandiser display case to use a high fin density evaporator. Unlike air conditioners and refrigerators operating in a frost-free environment, in refrigerated display cases that are subject to heavy frost formation, high fin densities in the evaporator could lead to bridging of frost between closely spaced fins. Therefore, it is conventional practice in the design of refrigerated display cases to use low fin density heat exchangers in evaporator applications. There is no teaching in Bemisderfer et al. or in the '560 patent that would lead one skilled in the art of refrigerated merchandiser display case design to depart from conventional practice. Rather, it is respectfully submitted that only Applicants teach use of a high fin density heat exchanger as an evaporator in a refrigerated merchandiser display case wherein the evaporator is subject to frost deposition.

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Claim 4 stands finally rejected under 35 U.S.C. 103(a) as being unpatentable over Richard E. Pabst, U.S. Patent 2,525,560. The Examiner cites the '560 patent as disclosing the invention substantially as claimed as stated above, but not disclosing a screen mesh structure at the inlet openings of the partition plate 80. The Examiner also cites the '560 patent as teaching the use of screen mesh structure at the outlet 79a in Figure 7. The Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the refrigerator of '560 patent in view of its own teaching such that the openings at the inlet of the partition plate with screen mesh structure could be provided. Applicants respectfully traverse this rejection.

Applicants respectfully submit that there is no teaching in the '560 patent to move the screen mesh disposed at the outlet duct of the evaporator as an inlet screen to the display region of the refrigerator R to a location in supply duct 82 intermediate the blower 58 and the evaporator 1. Accordingly, it is respectfully submitted that claim 4 is not obvious under 35 U.S.C. 103(a) in view of the '560 patent.

Claims 5 and 6 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 2,525,560, in view of Roberts, U.S. Patent 5,357,767. The Examiner cites the '560 patent as disclosing the invention substantially as claimed as stated above, but not disclosing a slotted or honeycomb flow structure. The Examiner cites Roberts as teaching the use of honeycomb inlet nozzle 29 having slotted structure in a refrigerated display air flow circuit for the purpose of even flow of air, citing Figure 2. The Examiner concludes would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the refrigerator of the '560 patent in view of Roberts such that a slotted honeycomb air inlet structure with the partition plate could be provided in order to have an even flow of air. Applicants respectfully traverse this rejection.

Roberts discloses the use of a honeycomb structure in the outlet of the secondary air curtain duct for directing the curtain air along a desired path. However, there is no teaching in Roberts that would lead one skilled in the art to modify the refrigerator R to include a honeycomb structure as a flow baffle

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intermediate the blower 58 and the evaporator 1 operative for the purpose of more evenly distributing air flow passing into the evaporator. Rather, it is respectfully submitted that one skilled in the art, if led at all by Roberts to modify the refrigerator R of the '560 patent, would merely be led to replace the screen member 79a at the inlet to the display region from the evaporator outlet duct with a honeycomb structure. Accordingly, it is respectfully submitted that claims 5 and 6 are patentable over the '560 patent in view of Roberts.

Claim 7 stands finally rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 2,525,560, in view of Ibrahim, U.S. Patent 4,370,867. The Examiner cites the '560 patent as disclosing the invention substantially as claimed as stated above, but not disclosing a flow area of 15 to 40% of the nominal flow area. The Examiner cites Ibrahim as teaching the use of 40% flow area by restricting normal flow area from 100% to 60% resulting in 40% flow area in a refrigerated display area flow circuit for the purpose of increasing the air flow velocity, citing column 6, lines 4-7. The Examiner concludes it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the refrigerator of the '560 patent in view of Ibrahim such that the openings of the partition plate with 40% of the nominal flow area could be provided in order to have a desired air flow. Applicants respectfully traverse this rejection.

Ibrahim discloses restricting the flow area of discharge duct during defrost only so that the momentum of the ambient air being discharged therefrom after passing over the evaporator surface actually passes over the back wall of the display case rather than being directed into the display region of the display case. The Examiner's attention is directed to column 5, line 14, through column 6, line 27. There is absolutely no teaching in Ibrahim of restricting the flow area for refrigeration air during the cooling process. Ibrahim's disclose of restricting flow air applies only during the defrost process. Ibrahim only discloses unrestricted flow area during the normal cooling process. As Ibrahim teaches restricting air flow area only during the defrost operation, it is respectfully submitted that one skilled in the art would not be led to modify the refrigerator R of the '560 patent in view of

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Ibrahim to provide a baffle with restricted flow area intermediate the fan and evaporator during cooling operation for the purpose of more evenly distributing air flow entering the evaporator as taught by Applicants. Accordingly, it is respectfully submitted that claim 7, rewritten in independent form as herein presented, is patentable over the '560 patent in view of Ibrahim.

In summary, Applicants respectfully submit that claims 1-7 distinguish over the art of record for the reasons stated herein. Applicants respectfully request that the Examiner enter this amendment after final and reconsider the final rejection of claims 1-7. Applicants respectfully request that, upon reconsideration, the Examiner withdraw the final rejection of claims 1-7 and pass the application to issue.

Please note that the undersigned attorney has a new phone number and correspondence address as indicated below. A Change of Correspondence Address form is being submitted under separate cover.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-0289.

Respectfully submitted,

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